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Dr. R. B. Seligman March 1, 1966

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TFP

A pilot plant investigation into the feasibility of using a Formex fabric (synthetic wire mesh) in place of the wet (woolen) felt in the press section of the forming machine is approximately 80% complete. This investigation resulted from a request of the TFP Pilot Plant Committee. Should this replacement be practical, substantial savings in machine capital costs and operating costs are anticipated.

Efforts to develop a TFP product having greater filling power than usual have been initiated. Such things as effect of discontinuous clupaking, sheet weight, and thrashing are being evaluated. Thus far it has been shown that thrashing rather than square cut TFP increases the RTD of TFP cigarettes and that discontinuous clupaking of light weight (6.5 grams per square foot) TFP results in lighter cigarettes.

All TFP runs in the pilot plant will use the total utilization formula. This change in formula from the previous one (similar to current BL formula) should result in a stronger product as the stem content has been raised from 60 to approximately 80%. It is anticipated that this formula will decrease the smoking acceptability of TFP.

Several preliminary venture analyses are underway studying the use of TFP plants and products in Australia and Spain. During this report period, a visit was made to Venezuela for presentation of the venture analysis based on their situation and TFP products reconstituted from their raw materials.

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DAP-BL

Reviews of the dust-in-cigarette data from cigarettes made using oversprayed BL plant sheet have not shown the positive results expected from preliminary pilot plant tests. This negative result indicates that either reformulation of the BL plant overspray is needed or that the overspray technique is basically inadequate. Plans are being made to check both of these propositions.

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Laboratory investigations into the effect of sheet temperature during the drying of BL have indicated that a substantial increase in the dust adhesion may be obtained by drying at elevated sheet temperatures. Further laboratory investigations are planned in this area.

Currently an investigation studying the effect of the amount of DAP used to prepare binder is underway in the pilot plant. This investigation was initiated because statistical studies have indicated that increased DAP results in a lowering of the dust in the cigarette.

HBL (HOMOGENIZED AND/OR HOMOGENEOUS BLENDED LEAF)

Evaluations of HBL products made during January in the pilot plant have shown that HBL has good elastic and tensile properties and that long nearly dust free filler can be prepared. Efforts in this area have been increased to study the rheological properties of HBL slurries, the drying rate of HBL slurries and to develop techniques for improving the color of HBL.

FORMULATED SHEET

A report has been written which deals with the amount and viscosity grades of pectic acids which are available from bright and burley tobacco lamina and stems. The pectin of green and freshly cured stems was of higher viscosity, had greater chemical stability and was more difficult to extract than pectins from stored or aged stems. Further investigations are planned to study this difference. Perhaps a clue or a better understanding of aging may be obtained.

Several lots of machine made cigarettes have been made recently from designed filler. These cigarettes have a bland taste and should provide an excellent basis for evaluation of many different prospective cigarette flavors.

Two additional persons, Dr. Ed Deszyck and Mr. Don Simmons, have been assigned in this project area.

PUFFED STEMS

The "17" Series containing TFP, BL, RKS and puffed stems at 5, 10, 15 and 20% levels in Marlboro fillers again indicate the same trends as seen in previous studies. Again, a filling power advantage, as demonstrated by lighter weight cigarettes of equal RTD's and increased yield of cigarettes per unit weight of

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filler has been shown. Decreased nicotine, TPM, tar content, OGP delivery and slightly decreased puff content and static burning time were seen again. (These differences largely are attributable to the decreased weight of the puffed stem cigarettes.)

A study using the English bright tobacco Players type cigarettes yielded similar results.

Evaluations of cigarettes made from blends of puffed stems or RKS with BL or TFF in Marlboro filler are in progress.

Economic evaluation of the puffed stem potential is underway. Thus far material balance flow sheets have been prepared and work is in progress to estimate the conversion cost for producing puffed stems.

An engineering study estimating the following installations for studying the process and producing puffed stems has been completed.

A. Minimum pilot plant installation.
B. A more complete pilot plant installation.
C. A commercial installation at input rates of 1500 lbs. per hour and 3,000 lbs. per hour. ("The Development Engineering Puffed Stem Process Estimates and Conditions" report by O. Licis and G. Filias dated February 28, 1966.)

Pilot plant studies to evaluate the Urschel Micer with regards to product characteristics and to determine optimum operating conditions at slicing rates between 600 and 1200 lbs. per hour are in progress. Two commercial fluidized bed units for puffing stems are presently under evaluation. Results at optimum slicing conditions of puffed stems will be necessary before a firm recommendation on the purchase of a puffer can be made.

HBM:gjm

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